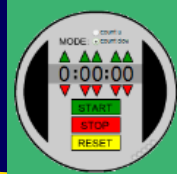


Data Management



Data Management: an effective way to collect, organize, represent, display and analyze data.

Ex: Sports, Medicine, farming, etc...

copy tile down

Unit One Data Management

What Should We Know From Grade 9?

- take data and place it into a scatterplot
- describe relationships shown in scatterplots (continuous/discrete, independent/dependent variables)
- sketch lines of best fit
- determine the equation of a line of best fit
- sketch a curve of best fit for data that is non-linear

1.1 Variables and Relationships

Curriculum Outcomes	Related Activities	Page in Text
<ul style="list-style-type: none">gather data, plot the data using appropriate scales, and demonstrate an understanding of independent and dependent variables, domain, and range (pages 2, 3)	<ul style="list-style-type: none">identify the factors (variables) that interact to affect tree growth	2
	<ul style="list-style-type: none">identify independent and dependent variables in the relationships and discuss which variables can be controlled	3
<ul style="list-style-type: none">design and conduct experiments using statistical methods and scientific inquiry	<ul style="list-style-type: none">design and carry out experiments and organize data that demonstrates the effect of controlling all but one independent variable in an investigation	4
<ul style="list-style-type: none">solve problems by modeling real-world phenomena	<ul style="list-style-type: none">represent the relationship using a mind map	6

notes

Cause-and-effect relationships (p.2)

- When a change to one variable causes a change in another variable.
Ex: vehicle traffic causes an increase in pollution

Variables: any measured quantity that changes in an experiment or relationship.

Types of variables:

- 1) Independent Variables
- 2) Dependant Variables

1) independent variable: a factor(s) that affects another factor in an experiment or relationship (the cause which affects an outcome).

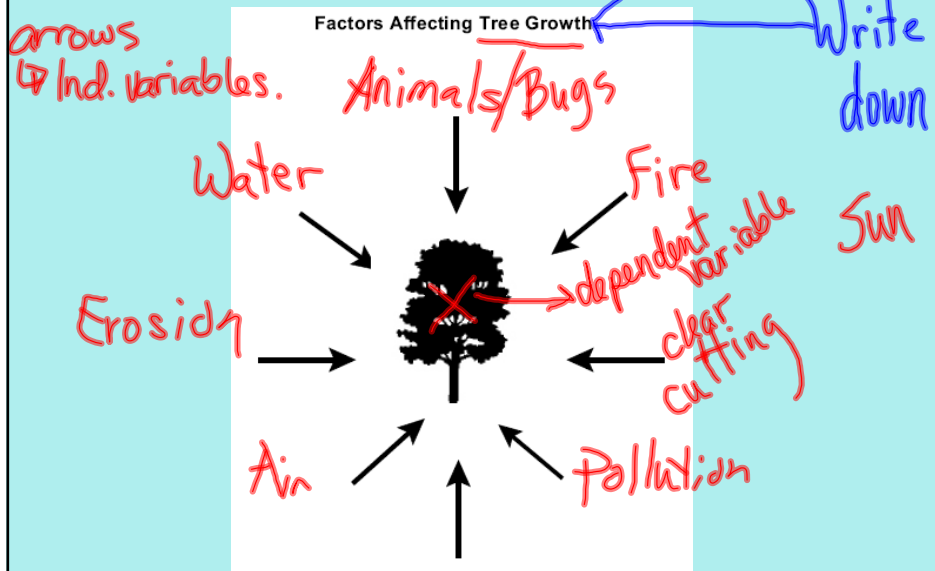
Ex: Rainfall, vehicle traffic, pollution, etc. (time spent studying)

2) dependant variable: is the factor that is affected by other factor(s) in an experiment or relationship (the effect which occurs after particular factors are presented)

Ex: Tree growth rate (Test mark)

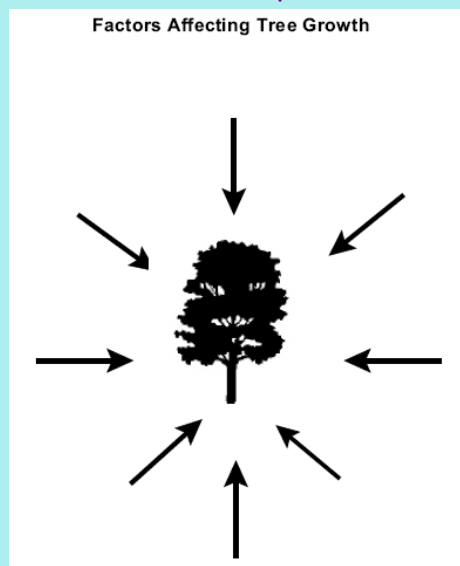
Task:

- Draw the diagram below in your notes
- Add factors that affect tree growth to your diagram
- Choose 2 and describe how they might affect tree growth rate
- Out of all the factors, which ones do you think that the farmer could control? Explain.



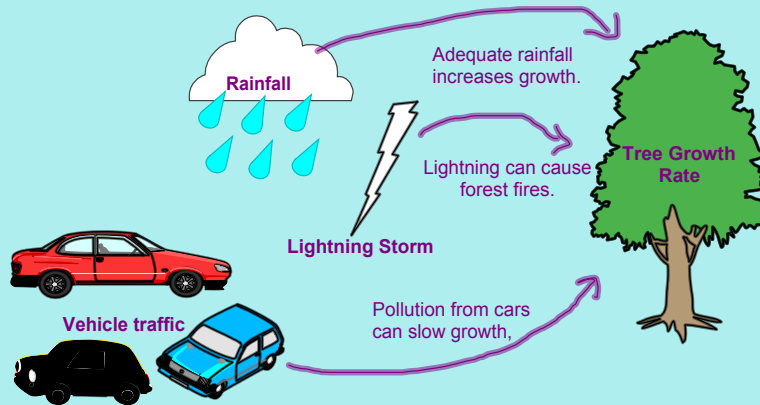
Task:

- ✓• Draw the diagram (Mind Map) below in your notes
- ✓• Add factors that affect tree growth to your diagram
- Choose 2 and describe how they might affect tree growth rate
- Out of all the factors, which ones do you think that the farmer could control? Explain.



Focus A

Mind map of factors that affect tree growth



dependant variable: the effect which occurs after particular factors are presented

independent variable: the cause which affects an outcome

Controlled Experiment

- there are many factors (independent variables) that can affect final result of a situation (dependent variable).
- to see which factor has the greatest affect a scientist will study one variable at a time by allowing it to change while all the other variables affecting the situation are held constant.

controlled variable: any independent variable whose value is held constant during an experiment.

Check Your Understanding

"The end result of _____ is effected by _____."
(dependent) (independent)

Page 3 # 2 of Textbook

a) Jim says that the amount of lumber that he can cut depends upon the time that he spends in the woods.

D =

I =

b) Kareema says that the amount of time that you spend walking to school depends mainly on the distance of your home from the school.

D =

I =

c) Sandy earns more money in a 6-h shift than she earns in a 4-h shift.

D =

I =

d) Robert drives a tractor-trailer. He is interested in the relationship between the amount of diesel fuel he uses and the size of the load in the trailer.

D =

I =

In an experiment you need to:

Copy this into notes

1. have only one dependent variable
2. choose one of your independent variables (called the controlled variable)
 - this should be the independent variable that you think has the most influence to cause a change in your dependent variable.
3. make sure ALL other independent variables (other things that could also cause change) remain the same (constant).
4. describe how you plan on changing the controlled variable to cause a change in the dependent variable.

In-class Assignment

Create a Mind map of each of the following:

(use a half of a page for each, be as neat as possible, and use pencil only)

1. Amount of lumber cut
2. The time it takes for sugar to dissolve in water
3. Amount of gas used
4. Test Mark

Each map should have:

- the dependent variable (in the center)
- at least 6 independent variables

Choose two of your four maps, and do the following:

- choose one of your independent variables (this will be called the controlled variable)
- Describe in 2-3 sentences an experiment that could be done using the controlled variable that you chose and the dependent variable.

When you are done:

1. Make sure your name is on your assignment and that it is stapled together if it needs to be.
2. Put it in the Period 5 Bin at the front of class
3. Read over and answer Question #8 on Page 6.

Practice:

"_____ effects the end result of _____. "
(independent) (dependent)

Page 4 # 3

Description	Cause/Effect Relationship? Yes/No	Variables
a) The length of a candle and the amount of time it has been burning		Independent: _____ Dependent: _____
b) The mark you get on a test and the time you spent studying		Independent: _____ Dependent: _____
c) The speed of a car and the distance from the nearest gas station		Independent: _____ Dependent: _____
d) The length of a movie and its admission price		Independent: _____ Dependent: _____
e) The age of a car and its current value		Independent: _____ Dependent: _____
f) The population of a community and its distance from the coast		Independent: _____ Dependent: _____